

VIRGINIA WILDLIFE

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Colonial Williamsburg Photo by George Beamish

James Fort—a beachhead in the vast wilderness of a new world.

VIRGINIA WILDLIFE

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*A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and
Related Natural Resources, and to the Betterment of Hunting and Fishing in Virginia*

COMMONWEALTH OF VIRGINIA



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Jim Nelson (Running Deer), a direct descendant of the first Americans, demonstrates one of his ancestors' methods of taking fish from the James River. Friendly Indians played an important role in the permanency of the Jamestown settlement.

Commission Photo by Kesteloo

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What Do You Think?

WHAT is there in man that gives him the urge to violate the game and fish laws? That is a fair and reasonable question and demands a fair and reasonable answer.

When civilization began to dawn upon the earth, the cultivation of the soil for the production of food to satisfy the pangs of hunger was hardly known to man. The human race "lived from hand to mouth." Man had to go out from his den or cave with stones and other simple devices and kill wild beasts and fowl for his table—if indeed he had a table.

Unfortunately, the idea of hunting the "beasts of the field and fowls of the air" for something to eat still exists in man today. They are called "meat hunters" and are generally looked upon as "game and fish hogs." That's because that segment of human beings wants to hog the game without thought of leaving some for its neighbors. This instinct in too large a number of people has persisted down through the ages.

The prophet and lawgiver, Moses, when he led the children of Israel out of the land of Egypt some four thousand years ago, proclaimed the first conservation law as recorded in Deuteronomy (Chap. 22, verse 6) as follows: "If a bird's nest chance to be before thee in the way in a tree, or on the ground, whether they be young ones, or eggs, and the dam sitting upon the young, or upon the eggs, thou shalt not take the dam with the young."

Moses, even in those days, realized that for the future food supply of his people it was not the right thing to do to take a bird from her nest or to take the young from the nest. To do so would not only destroy the young brood but in taking the mother bird would destroy potential future broods.

Where there is so much competition in the field of hunting and fishing, approximately a million people in Virginia alone, there simply is not enough game and fish in the fields, woods and waters of the state for anybody

to take more than the law in its wisdom says one might take.

There is an estimated deer population of two hundred thousand in Virginia. If two hunters out of five killed a deer next season, there would not be a deer left in the state. If one hunter out of a hundred killed a wild turkey next year, there would not be a turkey left in the Commonwealth. If one third of Virginia hunters should kill in any one year one third of the season's limit of squirrels, there would not be a pair of squirrels left in the Old Dominion to reproduce their kind. You might go right on down the line and encompass all species of game and if each hunter got even what the present-day law permits, Virginia's wildlife resources would be wiped out. How necessary, therefore, it is that Virginia's hunters and fishermen be reasonable as well as thoughtful when they go to the fields and woods to hunt or to the public waters to fish!

The Commission of Game and Inland Fisheries is spending relatively large sums of the hunters' and fishermen's dollars to educate the public to a true appraisal of the value of protecting the state's wildlife resources; we are spending larger sums each year in game and fish law enforcement. We are now spending three quarters of a million dollars in law enforcement. If the hunters and fishermen of Virginia would just stay within the law, we would have nearly a million additional dollars a year to improve and manage habitat for game and fish. This is the only way Virginia can ever guarantee a reasonable supply of wildlife for those who hunt and fish. Representing the sportsmen-conservationists of Virginia, the Commission of Game and Inland Fisheries has a right to ask and the law demand that every hunter and fisherman who goes afield conform to the principles of conservation and be reasonable and conservative in his take. The law says what the daily bag and creel may be. Obey the law.—I. T. Q.

What Do You Think?

You and I own two kinds of property: that to which we have title as individuals, and that which we hold in community. Our tenure in both cases is acknowledged to be temporary. . . . Where are we to hunt and fish? The signs say 'No Trespassing,' and they multiply like rabbits. Where are we to camp and hike and picnic and just be alone? This year it's fenced. That used to be a lake; but the county drained it and now it's producing onions. Here was a boulder-strewn field, a corner of woods, and a spring; now there's a house, an acre of old automobiles, and a gravel pit. Wildlife belongs to the public, but so, perhaps, does the moon. . . . We have come to realize that many of the things we own in common must be as vigorously defended as what belongs strictly to you or me. . . . There is nothing from coast to coast, of any value whatsoever, that someone whose slogan is 'private enterprise' does not want. Where to draw the line on personal ambition and assert the claim of public benefit? . . . As a part of the answer, many states now are buying public hunting grounds and access sites on fishing waters. . . .

Durward L. Allen, *Our Wildlife Legacy*



Photo Source Courtesy V.M.I. Museum



Commission Photo by Kesteloo



Photo Source Courtesy V.M.I. Museum

The early Indian spent much of his time hunting in the woods and streams. Although his weapons were crude, animal bones found in excavations prove that he was a successful hunter. The left photo shows a large lance head and smaller spearheads. The right photo is that of a grooved axe and a polished celt.

Hunting and Fishing Implements of the Virginia Indians

By JOHN H. REEVES, JR.

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OFTEN we pause, momentarily, in our walks through woods or fields to pick up an arrowhead left there by an earlier Virginian; seldom, however, do we stop to consider the life and customs of the man who left it there. Today, we have only his artifacts and the writings of early explorers to create a picture of life in pre-colonial Virginia. Almost certainly, man has lived in Virginia for 10,000 years, and recent archeological developments indicate even a much older civilization on our soil. Exactly 350 years ago when our forefathers stepped ashore at James City on Jamestown Island they were met by a group of Indians belonging to Algonquin stock. To the west, in the Piedmont, lived the Sioux, and in the mountains, still farther west, lived people of Iroquoian stock. At the beginning of the seventeenth century about 800,000 Indians inhabited continental United States; it is estimated that about 20,000 of them lived within the confines of the state of Virginia.¹

Perhaps the first Virginian was a member of that culture known as "Folsom Man," so named because his artifacts were first discovered near Folsom, New Mexico. The fluted projectile point, so characteristic of his culture, has been found in all sections of our state. A second tool pos-

sessed by this man was a hide scraper, and with it he cleaned the skins of the animals that he killed.

With the disappearance of the Folsom culture, the man commonly known as the American Indian put in his appearance on the continent of North America. Some writers believe that certain of the Tibetan tribes, living on the southern slopes of the Himalayas may have been the progenitors of the Indian.¹ All of these men did not arrive in one large migration, but rather they trickled over from Asia across the Bering Strait. It is also feasible to assume that people gained entrance into America by other pathways; however, once here, the people found conditions to their liking and prospered until the coming of the white man.

Much of the Indians' time was spent in the fields and streams capturing game animals and fish. Of course, their main objective was to secure food, but it is difficult to believe that hunting and fishing was done without pleasure.

Swanton² states that the eating of fish flesh was forbidden in certain American tribes, but it was not considered a taboo by the tribes of the Southeast. Therefore, fish was an important item on the menus of all of the tribes

in this section, including Virginia. To capture fish, the Indians used various methods including fishing with hook and line, dip-netting, gigging or spearing, shooting with bow and arrows, trapping with weirs, and the use of poisons.

Fish hooks were not uncommon among the Indians of Piedmont Virginia; often they were made of deer antler or stone. Carroll³ describes a bone fishhook recovered from an Indian site in Halifax County, Virginia. The hook measures approximately $\frac{1}{2}$ inch in length and is $\frac{1}{4}$ inch across at the hook. The method of manufacture was to obtain a fragment of deer antler or bone of the proper length and width (this depends on how large the hook is to be) and smooth it on all surfaces. Then a long slit was placed near the center of the long axis of the bone core. The width of this hole determined the size of the hook. Then a cut was made at the proper point to allow for the length of the shaft, and when removed from the bone blank, the hook was ready for use. Larger fishhooks were made from stone.

The sinkers were often nothing more than a small stone chipped on opposing edges in order that the fish-line might be tied securely. Soapstone sinkers were often of better quality, some being grooved around their entire edges forming a reel around which the line could be coiled. The sinews of deer often served as fishing lines, and Swanton² states that fishing lines were also made from bark. Strachey, writing in 1849, describes their complete fishing apparatus in the following quaint manner: "Theire angles are long small rodds, at the end whereof they have a clift to which the lyne is fastened, and at the lyne they hang a hooke, made either of a bone grated (as they nock their arrows) in the forme of a crooked pynne or fis-hook, or the splinter of a bone, and with a thread of the lyne they tye on bayte."²

A very interesting fish trap was described by Adair in 1775.² It consisted of a hemp net three feet deep and three feet across at the mouth. On each side of the

mouth was an elastic green cane pole. Underwater, the operator opened the mouth of the net by holding the poles in a horizontal position and pulling them apart. When fish entered the net, one hand taken off a pole permitted the mouth of the net to snap shut, trapping the fish.

Several writers have stated that the Indians used spears to gig fish, especially the sturgeon, and a few have noted that arrows attached to long lines were shot at fish. The Indians apparently enjoyed shooting an arrow into a large fish because they often fought vigorously in attempts to dislodge the arrow.

David I. Bushnell, writing in 1930, described fish weirs made of stone in the James River at Richmond and in the Rappahannock River near Fredericksburg. These contrivances were so arranged that fish unwittingly entered a deep well through a narrow opening; once inside they found their exit blocked. The Indians could then remove the fish whenever their appetites called for this item of food.

Fish poisons used by the Indians to take fish for food included the roots and fruits of the buckeye, roots of devil's shoestring, and the berries of the red-berried moonseed (*Cocculus carolinus*). The berries of *Cocculus* were the most potent, but juices from the fruits of the buckeye were most generally used because they sank quickly into the water and killed many fish. The flesh of the fish taken by these "poisons" was in no way contaminated and was relished by the Indians.

The excavation of an Indian site will convince anyone that the Indian was a successful hunter, for the tremendous number of animal bones are mute witnesses to this fact. The Indian was a patient hunter and would lie in wait for hours in order to kill his game. He often donned the skins of the animal that he sought and crept into their midst to make his kill. The very early Indians, prior to 300 B.C., did not have the advantage of the bow and arrows, but used instead the spear thrower. Most

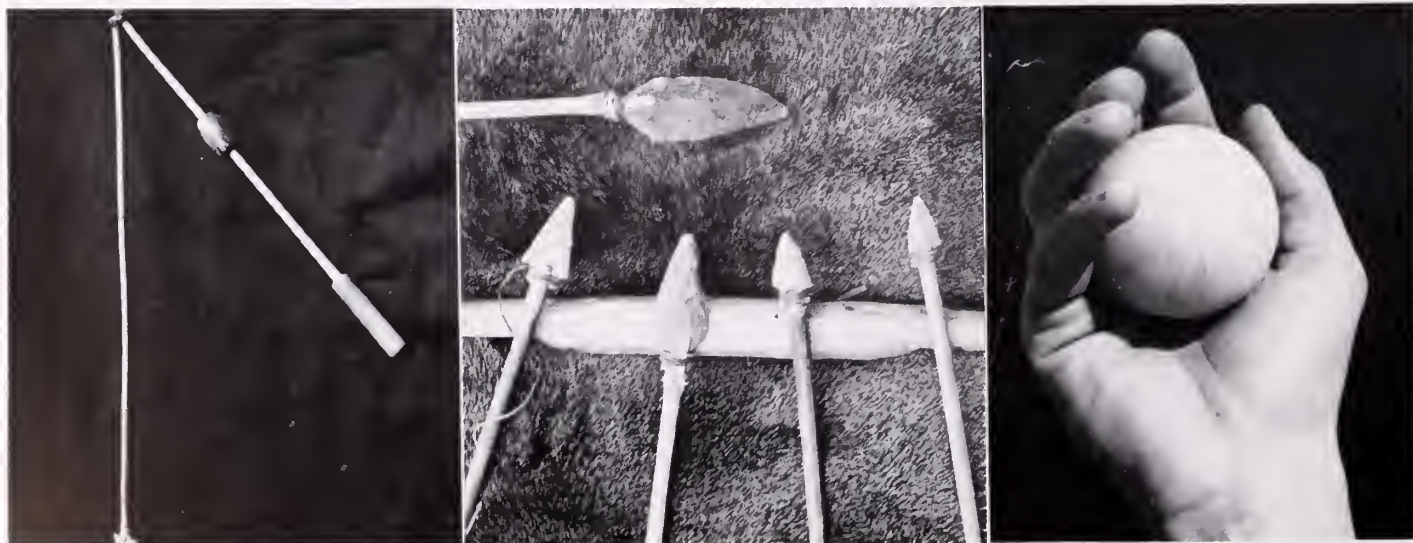


Photo Source Courtesy V.M.I. Museum

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Photo Source Courtesy V.M.I. Museum

The spear thrower (left above) was a very early weapon of the Indian. This instrument could drive a short spear at a terrific speed for a reasonably long distance. Arrow and spearheads (center) were bound into place on the shaft with bark strips or rawhide. The quartzite game ball (right) indicates that the Indian enjoyed other forms of recreation in addition to hunting and fishing.

of the notched points found are tips of the short spears of this era. The spear thrower measured about three or four feet in length and was capable of projecting a short spear, also about four feet long, at a terrific speed for a reasonably long distance. On the shaft of the thrower was placed a banner stone, more properly termed an atlatl. This was stone, usually reniform in shape, with a hole drilled through it. As the thrower was slung forward to deliver the spear, the stone slipped forward on the shaft giving greater power than could be obtained by the weight of the shaft alone. Therefore, the stone acted much as does an apple when thrown from the end of a slender twig. A canine tooth, usually from a carnivorous animal such as the fox or wolf, was set in the distal end of the thrower; against this the spear was placed and as the thrower was brought forward, the spear was turned loose and allowed to proceed towards the target. The Indians became quite accurate with this instrument, and it proved quite useful in killing the larger animals. Before the invention of the spear thrower, most writers believe that only the sickened or weakened animals could be taken.

The celt, which was used as a skinning knife and as a hand ax, was developed early in man's history, for it is found in all countries inhabited by early man. It had a blade on one end and a rounded tip on the other. It was typically triangular in shape and generally well polished. The polishing technique probably consisted of many long hours of work, and was done by dipping wet deer skin in fine sand and using this as an abrasive.

The ax, a later tool, was generally hafted and used as a wood-cutting instrument. It was sometimes polished like the celt, but often it was roughed out of stone and used in a semi-finished condition. The tool was generally hafted by splitting a green stick, then inserting the head and binding it into place with bark strips or rawhide. Since the Indians were not rushed for time, the stone head may have been placed in the fork of a tree, still living, the two branches being laced together, and left in this position until the tree grew around the instrument. It is entirely possible that both the ax and the celt were used to dispatch larger animals caught in traps or snares or wounded with other hunting equipment.

The scraper was an early instrument and was made from almost any fragment of stone. Generally one side of the stone was worked to an edge suitable for scraping the hides clean. Another type of scraper was the mounted scraper, shaped somewhat like a projectile point, but having a rounded tip instead of a point. This was bound onto the end of a crooked stick and made a very handy tool. All of the hides had to be well cleaned before clothing or other necessities could be fashioned from them.

Captain John Smith, writing in 1607, gives both the method of making and using bows and arrows by Virginia Indians: "For fishing and hunting and warres they vse much their bows and arrowes. They bring their bows to the forme of ours by the scraping of a shell.

Their arrowes are made, some of straight young sprigs, which they head with bone some 2 or 3 inches long. These they vse to shoot at squirrels on trees. An other sort of arrowes they vse, made of reeds. These are peece with wood, headed with splinters of christall or some sharp stone, the spurres of a Turkey, or the bill of some bird. For his knife, he hath the splinter of a reed to cut his feathers in forme. With this knile also, he will ioint a Deare or any beast; shape his shoes, buskins, mantels, &c. To make the notch in his arrow hee hath the tooth of a Beuer (Beaver) set in a sticke, wherewith he grateth it by degrees. His arrow head he quickly maketh with a little bone, which he ever weareth at his bracer, of any splint of a stone, or glass in the forme of a hart; and these they glew to the end of their arrowes. With the sinews of a Deare, and the tops of Deares horns boiled to a jelly, they make a glew that will not dissolue in cold water."²

In Virginia the bows were commonly made from the black locust and witch hazel; often they were highly polished and decorated with pearls and beads. The bow strings were made from deer gut or strips of raw hide. The arrow shafts were about four feet long and were made from reeds and the twigs of the arrowwood tree. Feathers of the turkey were preferred for fletching, but hawk feathers were often used for this purpose. As pointed out previously, arrowheads were made of stone, triangular in general shape, and of various sizes depending upon intended use.

Little attention was given by the early writers to the description of the quiver, but several reports state that they were made from the skins of wolves or deer. In addition, the Indian wore an arm protector of skins or leathers to keep the bow string from burning the forearm.

Excavations at Indian village sites often turn up the "little bones" which the Indian wore at his belt to make arrow tips, and as often as not they are made from the tines of deer antlers. Usually these "chipping bones" show wear where the stone has been flaked. There is no evidence to support the theory that the Indian ever manufactured points by first heating the stone and then chipping off flakes with a wet straw. As a matter of fact, a point made by this method would have no value since burned stone crumbles readily. The stones most commonly used in the manufacture of arrowheads were quartzite, cherts, and chalcedony.

The metal tomahawk of the white traders should not be confused with the stone ax of the Indian. Often the stone ax is called the tomahawk, but the true tomahawk was not known to the Indians until after the coming of the white man.

Hunting and fishing were not the only forms of recreation that the Indian enjoyed; he often enjoyed a game very similar to lacrosse, the main difference being that the Indians played the game with two sticks instead of one. The balls were commonly made of deer skin, but on rare occasions beautifully polished game balls were

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Commission Photo by Kesteloo

The early settlers knew very little about smoking and storing fish. By observing the friendly Indians, these techniques were gradually mastered.

Fishing at Jamestown

By MAX AILOR

"Outdoors" Editor, Richmond Times-Dispatch

JAMESTOWN, the first permanent English settlement of our nation, might never have endured hardships nor waste during the historical "Starvation Time" in the winter of 1609 had there been any man trained in the skills of fishing or the art of preserving foods.

"I don't believe there was a fisherman among the first settlers of this nation," the late John H. Gwathmey, outdoor editor of the *Richmond Times-Dispatch* and author of many books concerning the early history of Virginia and of Captain John Smith, often said.

It was not conceivable to Gwathmey, one of the finest fly fishermen Virginia has known, that a man should starve in the midst of such plenty, particularly if the accounts of Captain John Smith concerning the great numbers of fish that were to be found in the James River and the Chesapeake Bay are to be taken as true.

That Smith was not inventing stories—as historians often have inclined to accuse the great adventurer of doing—was certified 100 years later when Robert Beverley, hearing false accounts in England concerning the new country, published his "The History and Present State of Virginia" and told of the great varieties of fish which were in such great numbers throughout all of

Virginia's tidewater rivers.

"As for Fish," Beverley reported, "both of Fresh and Salt-Water, of Shell-Fish, and others, no Country can boast of more Variety, greater Plenty, or of better in their several Kinds." He later recounted how, even in 1705, the Indians still found the fish in such numbers that they might easily be speared by small children.

Smith accused the settlers of being lazy. Historians accuse Smith of being a poor administrator. All persons within the settlement were permitted to draw from the commissary regardless of how much they had contributed in the way of work and stores. This destroyed initiative and Smith reported that the settlers would rather die of starvation than to work.

The colonists had arrived too late to plant and raise a crop. Fishing, however, was good throughout the year. But, the settlers knew little of fishing and less of the methods of smoking and storing fish—an art they later were to learn in observing the methods of the few friendly Indians they were to encounter.

Smith made his first adventure up the Chesapeake Bay soon after he had taken charge of the new settlement.

"Some otters, beaver, martins, lizzards and sables were

found," he later wrote. And, in divers places, that abundance of fish lying so thick, with their heads above water, as, for want of nets, our barge driving amongst them, we attempted to catch them with a frying pan. But, we found it a bad instrument to catch fish with. Neither better fish, more plenty, or variety, had any of us ever seen in any place moving in the water, than in the Bay of Chesapeake. But, they are not to be caught with a frying pan."

Smith often spoke of the abundance of fish. And, one of the settlers found that the frying pan trick did work near the beaches at Jamestown as he wrote home to England that the fish often would jump into his frying pan if it were held close to the water. Smith reported that at one time his men had to cut their way through a heavy school of sturgeon that a path up the James River might be made for the small boats.

"Vituals were near spent," said Smith, when his group made a voyage up the Tappahannock River. "We spied many fishes lurking amongst the weeds, on the sands. Our captain, sporting himself to catch them, by nailing them to the ground with his sword, set us all to fishing in that manner. By this device we took more in an hour than we all could eat."

During the same period, however, the captain, who had started the sport, managed to spear a sting-ray, which lashed at him and stung the captain on his arm. The arm swelled and caused much bleeding to be done. But, even then the men were certain that the captain would die and dug a grave for him. The sting-ray was eaten by the men; the captain recovered and the point was called Sting-Ray Isle by Captain Smith.

The English, however, who survived the "Starving Period," observed the Indians and learned to take their fish in a more convenient manner. They were to catch the fish in great quantities, but not to the extent that the rivers were to be rid of the hordes of fish which dwelled



Commission Photo by Kesteloo

In addition to catching fish with hook and line, the Indians often utilized the bow and arrow for this job.

in them. The dwindling of the numbers of fish, instead, has been traced to the trend of modern progress and machinery—human and mechanical waste being dumped into the streams to pollute the waters.

The settlers observed that the Indians made weyrs; that is, a hedge of small sticks, or reeds, of the thickness of a man's finger and wove them together in a row with strips of green oak as a means of catching the large fish which lurked in the deep waters. The weaving was so close that the fish could not pass through.

Upon high-water mark, the Indians pitched one end of this hedge on shore and extended the other end into the river to a depth of eight or ten feet. The fish became so contracted in such a small area that the Indians had merely to take out what fish they wanted.

At the falls of the rivers where the water is shallow and the current strong, the Indians used another type of weyr. A dam of stones was built across the river leaving one or two openings for the water to pass through. Cone-shaped baskets were placed at each of the openings and those fish that passed through were trapped.

The Indians, however, became sportsmen and enjoyed their night fishing most. They would build fires in dug-out canoes and push their boats into the deep water. The women folk were assigned the task of keeping the fire while the men stood in nearby craft with spears and bows and arrows.

The light attracted the fish to the surface. It also reflected into the water in such a way that fish could be seen in deep holes. Those fish which surfaced were blinded by the light and were an easy mark for the Indians, who speared them or killed them with a well-placed arrow.

The sturgeon also proved great sport with the Indians and they often provided a brave with an opportunity to prove himself as a brave man. The Indian way of catching sturgeon, when they came into the narrow part of the rivers, was by a man's clapping a noose over

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Photo Source Courtesy V.M.I. Museum

Indian fishhooks were often crude but usually proved effective. The large hook is made from stone and is attached to a line along with a soapstone sinker. The small hook is made from a deer antler and directly below is an incomplected hook from a sliver of deer antler.

Early Virginia Indians'

Hunting and Trapping Methods

By DONALD G. HEROLD and BEN C. McCARY*

IN the six or seven hundred years prior to the arrival of the settlers at Jamestown in 1607, the Indians of Virginia had been gradually developing a culture and economy which was increasingly supported by agriculture. However, hunting was still very necessary to provide skins for clothing and meat to supplement the food supply as the Indians had domesticated no animals other than a small number of dogs. It is natural that a people dependent upon their success at hunting would develop the necessary skills and weapons to a high degree.

Authorities estimate Virginia's Indian population of 1607 to have been about 18,000. Of this figure about half (9,000 Indians) lived in the Tidewater area. It is believed that the agricultural and fishing habits of the Tidewater Indians were conducive to a larger population than in any other section of the state where the people were mostly nomadic.

Though it appears that the Algonquin Indians of the Tidewater region of Virginia depended more on agriculture than did the Indians of the other parts of the state, they did not harvest enough to last very long. Smith says that for three parts of the year they had to live on what the country naturally afforded them. The Indian men's

agricultural responsibility was limited to clearing the land. The women and children did the planting, weeding and harvesting of crops. Fishing and hunting were male occupations. Fishing was seasonal in the Tidewater

region, especially in the winter when the salt-water fish sought deeper waters, whereas apparently game was plentiful during the winter months. Though corn and beans were dried, and fish, oysters and meat were smoked and dried for winter use, fresh meat was constantly in demand to supplement these stores.

In the hands of the Indian hunter the bow was a highly effective hunting implement. Concerning the effectiveness of the bow and arrow, Smith says: "Forty yards will they shoot levell, or very neare the mark, and 120 is their best at random." Percy relates an incident which occurred just outside James Fort: "One of our gentlemen having a target (shield) which hee trusted in, thinking it would beare out a slight

shot, hee set it up against a tree, willing one of the savages to shoot: who tooke from his backe an arrow of an elle (45 inches) long, drew it strongly in his bowe, shoots the target a foote thorow, or better: which was strange, being that a pistoll could not pierce it. We seeing the force of his bowe, afterwards set him up a steel target: he shot again, and burst his arrow all to pieces."

While the young girls helped the women tend the babies, care for the gardens and manage the households, the young boys helped the old men make tools and weap-



Commission Photo by Kesteloo

The white-tailed deer was a choice food of the Virginia Indian. The settlers at Jamestown soon discovered that the deer furnished excellent meat and leather.

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ons and were taught the use of the bow by shooting at squirrels and other small game found near the Indian villages. An interesting note is that archeologists find great quantities of squirrel and turkey bones at Indian camp and village sites.

The Virginia bows were made of several kinds of wood. Witch hazel and locust wood are specifically mentioned by early writers but, no doubt, ash, cedar, oak and other woods were also used. A sharp stone or shell had to be used to bring the selected piece of wood to form. The length of the average bow was probably about five and one-half feet. We can base this estimate on three bows of Virginia Indians now preserved in the Ashmolean Museum at Oxford, England, which were sent over from Virginia about 1615. Their lengths are five feet three inches, five feet seven inches and five feet nine inches. Deer sinew, stag's gut or strips of deer hide tightly twisted and stretched usually served as bowstrings.

Early records describe two types of arrows. A wooden shaft tipped with bone was used mainly for shooting squirrels and birds. One for general use had a reed shaft with a wooden foreshaft and was tipped with a turkey spur, an antler tine, a bird's bill or a stone arrowpoint. The typical projectile of the late sixteenth and early seventeenth centuries was the small triangular arrowpoint. The point was set in a split in the foreshaft and bound tightly by means of glue and sinew.

Arrows were feathered with split turkey feathers which were glued to the shaft. The glue used by the Indians was a jelly made by boiling the tips of deer antlers. The arrows were carried in quivers which were usually made of skins though occasionally of bark or rushes.

According to Strachey, the Indian male always carried a flaker on his bracer or wrist-guard. The flaker was usually made of deer antler, and was from four to five inches long by one-half to an inch thick. Occasional flakers are found in the Tidewater, made of large fossil sharks' teeth split in two equal parts from the base to the tip. With this tool an Indian could quickly flake a stone into shape, or rework a broken arrowpoint without removing it from its shaft.

The Virginia Indians used snares for taking the beaver and otter. Other small animals, as well as birds were probably taken in snares of several types. No records are available as to the exact types of snares used but records of later Indian activities would suggest the use of bent-over saplings and of propped logs as deadfalls.

When hunting bear the Indians often chased them until they climbed a tree. In most cases it was then easy to shoot them down. At times, two or three hundred Indians would gather for large hunts or drives. They would build many small fires in a large circle and place a number of men between the fires. Other Indians would then run in and kill all the deer, elk or bear in the circle. A large circle of fire was sometimes used, with a circumference of five or six miles. The burning was gradually directed to the center until the Indians could shoot the entrapped game.



While the Indian braves hunted, the women took care of the households, tended the babies and took care of the gardens.

When hunting deer alone, the Indian would disguise himself by covering his body with the entire hide of a deer. By skillful manipulation of the head, the hunter could get close enough to shoot the deer with his bow and arrow.

Speaking of Virginia wildlife, John Smith said "Of Beastes the chiefe are Deare." To the Indians, too, the deer were their chief mainstay. They were the major source of meat and clothing, and practically every part of the deer had its use. Deer sinews and entrails served as thread and as bowstrings, horns were used as tools and were boiled to make glue, the hide was used as clothing, the hair was used to make headdresses, and even the brains were put to use. They were an important ingredient for tanning skins.

Bears probably ranked second in importance among the animals useful to the Indians. Their skins became robes, the guts were made into bowstrings, the claws for ornaments and the oil was used on the hair and on the entire body.

The early writers also mention rabbits, squirrels, beaver, otter, raccoon, muskrat and even panther as being eaten. These and other animals also provided skins for clothing, pouches and bed coverings. The wild turkey was the most important game bird with pigeons, ducks, geese and other birds providing meat for food and feathers for clothing and ornaments.

John Smith sums up the Indian proficiency by saying, "In their hunting and fishing they take extreame paines; yet it being their ordinary exercise from their infancy, they esteeme it a pleasure and are very proud to be expert therein. And by their continuall ranging, and travel, they know all the advantages and places most frequented with Deare, Beasts, Fish, Foule, Rootes, and Berries."



Commission Photo by Kesteloo

Animal hides were important to both the Indians and the settlers since they furnished clothing and leather for various uses. The Indian, a good conservationist, utilized the entire animal, especially the deer, for various uses including thread, bowstrings, glue, tools from the antlers, headdresses from the hair and the brains for tanning the skin.

THE AMERICAN INDIAN AND CONSERVATION

Many people think of the American Indian as being wasteful and greedy with his country's resources. Historians, however, have disclosed that in most cases the Indian was an intelligent conservationist.

The redskin realized that in order for his future generations to share in the bounty of the country, he should harvest the animals wisely. Many tribes taught the young not to kill for sport, or to such an extent that the breeding potential of the species would be reduced.

The Indian believed that if anyone killed an animal which he did not need for food, it was a sin which that animal would punish with illness.

Certain of the tribes had strict hunting laws which dealt with the division of game among the people of the village or among the families of the hunters. It was generally understood that the fishing ground and hunting territory within the boundaries of a certain tribe were held in common by the entire group.

The Indian woman, besides preserving and storing venison, bear, fish and tails of beaver, put away vegetables, fruits, berries, and roots for winter use. Few products suitable for food escaped her notice. She made "sweetening" from the sap of maple, box elder, white walnut, and from the pod of the honey locust. Besides animal and fish grease, she seasoned her foods with the oil she obtained from black walnuts, hickory nuts, chinquapins, chestnuts, acorns, and sunflower seeds. Bark, bud, leaf, stem, flower, and fruit were all used in preparation of food and drink.

As an example of the conservation of medicinal plants, Sally Brown, a Catawba Indian woman, quoting her forefathers, said, "Cut the root, or medicine. . . . Put a little of it back in the ground so that it may not run away and be no more. If not, it may go away somewhere. Some of it will come back again (to the place) if you put it back in the ground."

The Indian did not want to waste animal and plant life for two reasons: economic motive and religious belief. Plants and animals were of utilitarian value and they were closely associated with medicine or power.

The Indian understood the essential facts about plants: medicinal, food, ceremonial uses, material of construction and for making dyes. . . . His knowledge was practical and thorough and considerably greater than that of the average white man.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

CONSERVATION EXHIBIT. The Commission worked with the Rockbridge County Council of Garden Clubs to feature conservation in a county-wide flower show in Lexington on May 21st. The best entries in a birdhouse-building contest for school boys in grades five through twelve were included in the exhibit. The Council is sponsoring a summertime contest, for girls in grades four through nine, to preserve leaves from native trees. Prizes will be awarded to those contestants who have accurately identified the most varied collection and correctly mounted them.

OUTDOOR WRITER DIES. In early May a great conservationist and outdoors writer died. His name was Johnny Mock. For 30 years he wrote hunting and fishing stories for the Pittsburgh Press, and was a tireless campaigner for the preservation of natural resources. Among the reforms he brought about in Pennsylvania were the adoption of a pure streams law, Sunday fishing, doe deer and bear separate hunting seasons, and the removal of county identification numbers from hunting licenses to keep landowners from discriminating against city people. He was past president of the Outdoor Writers Association of America. He was a blood brother of the Ojibwa Indian tribe, with the title "Writer of Stories." In his traveling as an outdoor writer, Mock fished and hunted in 45 states, five of the Canadian provinces, and Mexico.

LEOPOLD MEMORIAL AWARD. The vice-president of the Wildlife Management Institute, C. R. "Pink" Gutermuth, received the coveted Aldo Leopold Memorial Award at the 22nd North American Wildlife Conference. Leopold is considered, by many, the father of wildlife management in North America, and the honor given Gutermuth is in recognition of distinguished service to wildlife conservation.

IWL STEPS UP CONSERVATION PROGRAM. The Izaak Walton League contends that an alert league can influence Congress, and, with this goal in mind, they have established a Washington conservation office with J. W. Penfold as their top representative. With 66,000 of America's most influential citizens behind it, the Izaak Walton League has, with the decision to place a full-time conservation director in Washington, assumed an even higher position of importance in the councils of conservation.

NEW CONSERVATION PUBLICATION. Each topic of America's renewable resources—soil, water, forests, grasslands, and wildlife—is scientifically but simply explained by leading authorities in a new book commissioned by the Natural Resources Council of America. It is edited by Charles H. Callison, who is Conservation Director of the National Wildlife Federation.

A brief historical sketch and the imminent conservation problems of each resource, and the interdependence of all resources is the format used by the authors. Joseph J. Shomon, who is chief of the Education Division of the Commission of Game and Inland Fisheries of Virginia, now on leave at the University of Michigan as a National Wildlife Federation fellow, is the author of the comprehensive chapter on wildlife.

For individuals realizing the dangers that threaten America's natural resources, this book should be essential reading. Callison stated that it is a non-profit undertaking; net returns, if any, will go into the treasury of the Natural Resources Council to further the necessary defense of conserving this country's natural wealth.

POTOMAC COMMISSIONERS MEET. The Interstate Commission on the Potomac River Basin held its spring meeting at the Ingleside Hotel in Staunton, Virginia. "Cooperation in Watershed Development" was the theme this year. L. B. Dietrick, Dean of Agriculture at V.P.I., and E. D. Flory, Shenandoah Valley Soil Conservation District Supervisor, opened the meeting, followed by talks on soil conservation by Ed W. Mundie and Frank Carr. A field trip was made by all the conferees with a tour of the watershed projects on the South River of the Shenandoah. There was a panel discussion on "The People and Watershed Development" by representatives of agriculture, recreation, industries, municipalities, and the State Water Control Board.



Commission Photos by Kesteloo unless noted
From a crow's nest, such as this, a travel-weary sailor probably shouted the good news that land was in sight and the crowded voyage across the Atlantic was soon to end.



In the spring of 1607, one hundred five men and boys founded Jamestown, Virginia, and brought them to the New World. From left to right are the ships of the first voyage.

AMERICA . . RICH STOREHOUSE

From Jamestown, first permanent English settlement in North America, arose our United States—rich in natural resources. Our resources can keep us strong and we can continue to have a better life. Conservation must become a “way of life”—an habitual practice.



The common storehouse in rebuilt James Fort. This building housed what precious foods the first settlers could gather.



The original glass factory was established in the time of Capt. John Smith in 1608. Workers shape articles in the reconstructed glasshouse today just as they did 350 years ago.



The juices from grapes and beverages from other native plants were kept in casks and barrels brought along on the voyage from England.



Jamestown Festival Photo

Jamestown, Virginia. Here are replicas of the three ships that
Constant, 100 tons; Discovery, 20 tons; and Godspeed, 40 tons.



Jamestown Festival Photo

Here is the replica of the 100-ton flagship, Susan Constant, that
brought the first permanent English settlers to America.

USE OF NATURAL RESOURCES

site of the reconstructed story of the opening of the New
World a major world power today. Wise use of our remaining
highest standards of living on the globe. But to do either,
we must look throughout the length and breadth of America.



The early settlers quickly took up agricultural practices of the Indians.
Maize or Indian corn was an early staple in the diet at Jamestown.



Indian corn, called Mays by the aborigines, was used by the Indians and
settlers. They fertilized the plant by placing a fish in each hill of corn.

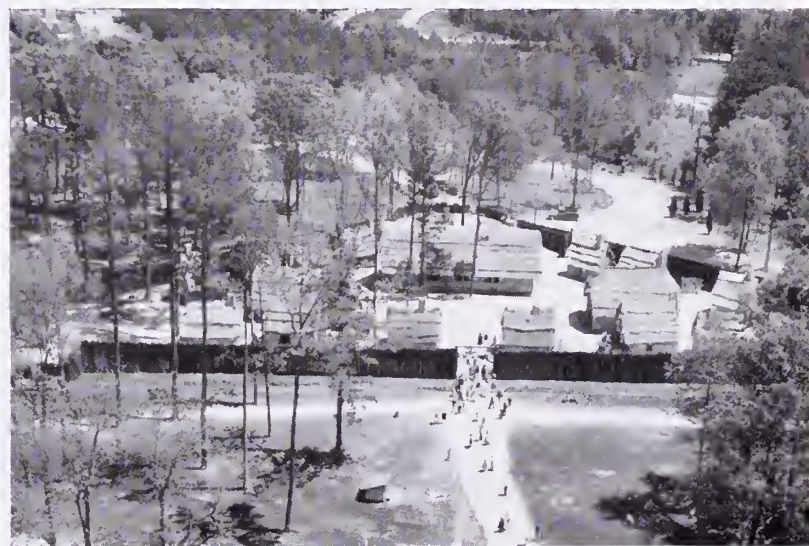
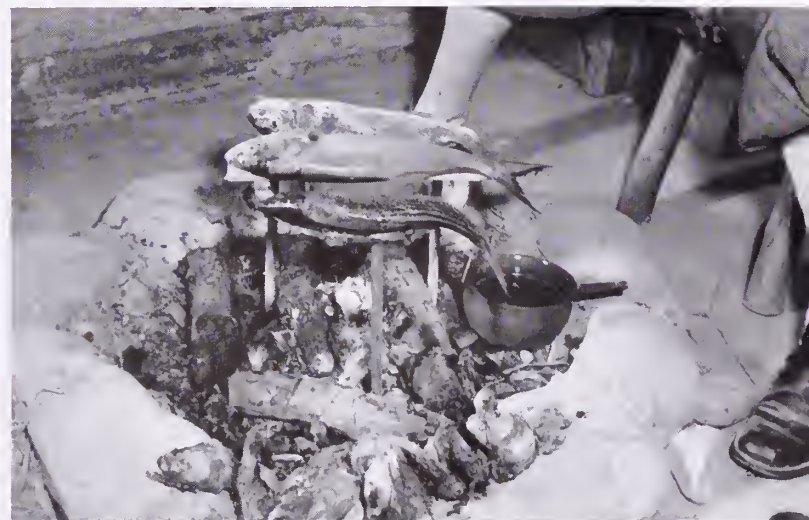


Photo by Thomas L. Williams

An aerial view of the reconstructed James Fort. The original fort was
built on Jamestown Island one mile from this site. It is believed that
the James River eroded away the original site.



Fish and shell fishes in variety were plentiful in the pre-colonial period
and were staple items in the diet of the Indians and settlers alike.



Commission Photos by Kesteloo

The kitchen was the most important room in the house of the early settler. A huge fireplace with moving iron racks and iron and brass pots dominated this room.

Food in 17th Century Virginia

By JANE M. CONE
Editorial Assistant

THE early historians have reported that the inhabitants of aboriginal Virginia were found to be extremely healthy, of unusual physical vigor, and had a longevity phenomenal in a savage country. Robert Beverley wrote in his history of Virginia, "I never heard of one single Indian that was either dwarfed, crooked, bandy-legged or otherwise mis-shapen."

When the improvident settlers landed on the tiny isthmus of Jamestown, they were weakened from the depleted store on shipboard and exhausted from the arduous voyage in the tiny ships. Their enthusiasm to search for gold was superseded by a desperate need for food. The generous supplies of the natives, principally in the form of Indian corn, not only strengthened them at this great moment of world history, but saved them on several occasions from starvation. Because, for the first two years, the English made only negligible efforts to cultivate crops and, until they learned from the Indians what to do with the abundance of the land, their very lives were dependent on the good will of the original inhabitants.

"Heaven and Earth," exclaimed John Smith, "never agreed better to frame a place for man's habitation." Virginia, in its original condition, must have been an earthly paradise. One member of the London Company, describing the amiability of nature and the goodness of soil prevailing, wrote in a dispatch to England, "I have travailed by land over 18 several kingdoms and yet all of them, in minde, come farr short to Virginia."

The colonists, seeking to acquaint themselves with the native resource, observed the prodigious diet of the healthy savages and, in order to conserve their scarce food supply, became aware of the edible variety of beasts, birds, fish, fruits, berries, and vegetables that were available in enormous quantity.

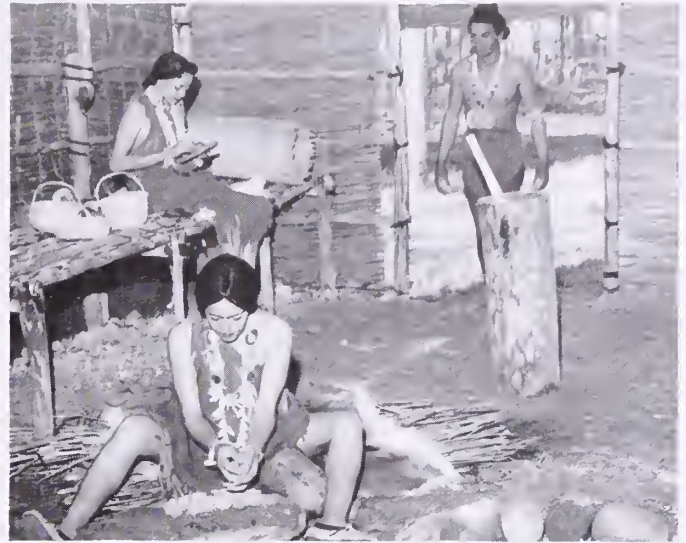
The Tidewater Indian ate fish and flesh of all sorts . . . and a combination of both, such as the beaver (the tail being a delicacy with them), the turtle and several species of snakes. They used no salt in their cookery, but seasoned occasionally with wood and plants that produced a salt-ash, such as hickory and stick weed. There was no set time for meals for when provisions were plen-

tiful, they would eat all night and all day. Their order of diet was according to the season. In March and April, they fed on fish, pheasants, turkeys and squirrels. In May and June, they planted their fields with peas, corn and beans and existed on fish, acorns, walnuts, mulberries and strawberries, land tortoises, crabs and oysters, and whatever game, (regardless of age, sex or condition), they could find. In July and August they fed upon the tuberous root they called tuckahoe, berries and roasting ears. Their main support in September came from nuts in the woods, maturing vegetables, roots, deer, fish and oysters. A feast was celebrated to welcome the return of the waterfowl in November, and they subsisted on fruit and many species of wild fowl. They were very careful to prolong each season with their stores of maize, supplementing each meal with some form of this nutritious food. Their bread, always eaten separately, was made from the grains of corn, kernels of nuts, wild oats, and the seeds of sunflowers.

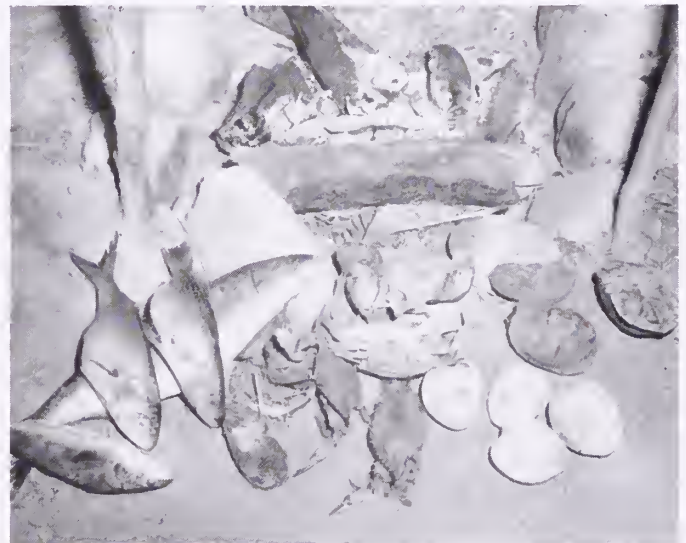
Living amid such a profusion of natural wealth, the colonists made careless and crude agricultural mistakes, but actual survival was primary. The responsibility of developing the soil for economic betterment was secondary. In 1612, through Rolfe's tobacco experiments, Virginia colonists began to realize the potential value of such production for exporting and, as trade started, began to study and utilize their own natural resources. Thus planting, preparation, and cookery of food was developed and the world-famous hospitality of the Old Dominion was established.

The English settlers tried as much as possible to run their households as they did in the Mother country, with many modifications of course. In addition to the unlimited supply of native food in great variety, they brought in cattle, which were allowed to roam wild in the woods. The beef was never very nourishing as a consequence and, whenever one was slaughtered, it was shared with the neighbors as meat preservation was risky. The only means of preserving fresh meat was by packing it in a box house which was placed in a flowing cool spring, or as was later reported, put in an ice house dug 15 feet in the ground. The ice was taken from a frozen pond and insulated with straw and weeds, but it lasted only a short time. The bacon was considered better than the Westphalia bacon from England, probably because there was little fat on the wandering hogs and there was a distinct and pleasing flavor caused by the roots and herbs eaten by the hogs.

As guardian of the turkeys and chickens, they attempted to attract a bee martin, or kingbird, in most poultry yards to attack the predatory hawks and crows. The settlers erected a tall pole to encourage the bird to build a nest, and with this alert sentinel always on duty, the chickens and turkeys propagated heartily. It was never considered a treat to be served wild fowl in the autumn and winter, for they were so numerous in the Tidewater section. The goose, mallard, canvas-back, red-head, plover, and many other species were more fre-



The Indian maize, after being ground, was formed into cakes and baked as a bread.



Many species of fish from salt and fresh water were utilized by the white settlers. In addition, oysters, mussels, crabs and turtles were included in their diet.



Indian corn and oysters constituted almost the complete diet of the settlers during the first two years of Jamestown.



Although domestic poultry was maintained in the fort, wild fowl was more frequently cooked than the domestic species.



To make meal, the corn was steeped for twelve hours in hot water. It was then pounded until fine and sifted in a small basket.

quently cooked in the kitchen than the domestic poultry. Nor was venison a specialty, for it too was plentiful, but mutton having to be imported was held in high esteem.

Salt-making for fish preservation was urgently encouraged, as the salt shortage in the early years of the colony allowed too much waste of the great hauls of fish brought in on every fishing expedition. Sturgeon was abundant, and kegs of sturgeon were shipped to Europe for the caviar gourmets. The colonists relished the diamond-back terrapin; a taste which they picked up from the Indians. They prepared it in the Indian method, which was simply roasting it whole in live coals; then, when cooked, it was eaten with the fingers. (According to Bruce's *Economic History of Virginia*, there were only a few references to the use of the fork in the inventories of the early seventeenth century). The terrapin was unknown in Europe at this time, and after being introduced, has held its place as food fit for kings. It is generally concluded that this delectable dish was born at Jamestown.

Although oysters, supplemented by the Indian corn, constituted almost their complete diet during the first two years of Jamestown, the English continued to eat them fried, boiled, roasted, or dried. Strachey described some oysters in Virginia as being 13 inches in length! (He probably measured them in the shells.) The savages boiled mussels and oysters together, making a broth which was thickened with flour. They were then hung on a string and dried in smoke. In this way, they were preserved for all-year enjoyment. There were many shell fish, but the tastiest were shrimp and hard and soft-shelled crabs.

Of many species of fish that abounded in the Chesapeake Bay, the colonists ate the sheepshead, trout, sole, plaice, flounder, whiting, sunfish, needlefish, greenfish, taylor, and black and red drum. They cooked the jelly found in the head of the drum fish into a broth, and gave

it to women in labor to quicken the delivery. Of the fresh-water fishes, they ate pike, eel, bream, shad, herring, catfish, and bass.

The Indian method of cooking fish was so appetizing that the settlers often cooked their fish in the same manner. It was certainly the easiest way! Without gutting or removing the scales, the fish was laid on sticks raised above the fire. Variations included suspending the fish from sticks, or covering it with live coals and hot ashes. The entrails and bones were thrown away after the flesh was eaten. Meat and fowl were cooked by the Indians on a spit, but they were very careful to clean and disembowel the game before cooking. Feathers were used as napkins by the Indians, after a small bowl of water was passed around in which they rinsed their hands.

Sufficient quantities of corn, wheat, and barley were grown and soon mills were built on freshwater courses so that meal could be ground in large amounts instead of by hand, Indian fashion. Meal was made from maize or corn in the Indian custom, after steeping the grain for twelve hours in hot water. Then it was pounded in a mortar until a meal was produced, and sifted in a small basket which substituted for a sieve. The meal mixed with hot water was kneaded into a consistent mass and rolled into balls and cakes. These were put into a pot of hot water and thoroughly boiled. Sometimes they were laid on a smooth stone to harden, and without being boiled, were covered with leaves and deposited in the open fireplace. Hot ashes were placed over them, and finally live coals were added. Before eaten they were carefully cleaned. The name "pone" is derived from the Indian word, "ponap," which was a broth made of corn meal and water. Bread made from wheat was eaten only in gentlemen's houses, but corn meal was more nourishing.

All of the English vegetables flourished in the Virginia soil. There were ten varieties of peas, sweet and Irish

potatoes, cauliflower, cabbage, and roasting ears of corn. They cultivated, too, the squash and beans which the Indians considered so delicious. Found in the fresh-water bogs was the tuckahoe, which the Indians had converted into food. This tuberous root was put in a pile covered with leaves, fern and loose dirt. A fire, kindled on each side of the mound, was kept burning for four hours. Cooked in this way only was it palatable for it had a strong acid taste and was never eaten separately but always with meat or fowl. Hominy was adopted by the colonists, too, and was a sort of porridge made from boiled corn mixed with a milky liquor, called pohickory, obtained from the hickory nut. Pohickory was a refreshing liquor by itself but was more often mixed in sauces by the better cooks in the New World.

Robert Beverley reported that a "Kitchin-Garden don't thrive better or faster in any part of the Universe, than there." The indigenous fruits that were transplanted to the estates were quince, peach, crab apple, two varieties of plum, figs, three cherry species, persimmon, and many others. In the fertile low grounds wild onions grew prodigiously, and the wild hops were much appreciated by the English. Strawberries, raspberries, mulberries, cranberries, currants, blackberries and huckleberries grew ubiquitously. Grapes also grew in abundance, and there were many different species. Wine made from the wild grapes was not considered as good as that fermented from the cultivated vineyards. Watermelon and musk melons were also indigenous and eaten with much pleasure by both the Indians and the colonists. Beverley tells of using the myrtle berry as a medicinal salve, but its greatest use was in making tallow by refining a wax that it produced. The candles were better than those made from beeswax and, when burning, emitted a pleasant incense. Apiculture was given much attention and there were few households that did not have hives under the eaves of the house.

A cordial made from snake-root had long been enjoyed by the English, but in the colony it was more effective as an antidote for pestilential distempers. They believed the rattlesnake-root to be an incomparable remedy for a bite from a rattlesnake. Many medicinal roots applied by the Indians were also adopted by the English. Swamp-root, which broke a fever, and the bark of the prickly ash, which would cure ulcers and infections of all sorts, were indispensable in the swampy region of the colony.

Many foods, such as sugar, citrus fruits, and spices, had to be imported. The Indians distilled the juice of the maple, candied it and processed it into sugar.

Until the English introduced liquor to him, there is no record anywhere that the Indian knew of any drink stronger than the juice of the maple. He drank water which was warmed first by the sun, and Captain John Smith described a physic, drunk each spring by the Indians, called "Wighsacan." It was water mixed with the juice of a root and was very powerful. Four to five days were required to recover from the purge that it

effected. For an emetic, they drank a strong brew made from yaupon, *Ilex vomitoria*, an evergreen tree of the holly family. The English, however, discovered that properly made, the branches and leaves of the *I. vomitoria* produced an excellent substitute for tea.

Beer was imported at first, but until the supplies arrived, it was brewed with various ingredients such as dried Indian corn, bran and molasses, potatoes, baked cakes from the persimmon tree, and the Jerusalem artichoke which was planted like barley to be consumed in the manufacture of spirits. Malt-mills and malt-houses became numerous in the small settlement. Cider was as common as beer, and wines made from their own vineyards and wild grapes were in every cellar. Aquavita and sack were drunk rather than water; also a mixture of honey and water known as mathegeline. Their strong drink was Madeira and Punch, a rum drink, or brandy distilled from their apples and peaches. Because the English were a thirsty race, there was popular demand for all kinds of imported liquors. It is understandable that the loneliness of their lives was somewhat less bleak when cheered by the liquid spirits that they consumed.

The kitchen in the house of the Virginia planter was the most important room and was dominated by a tremendous fireplace. Moving iron racks were imbedded in the chimney-piece by brick and mortar, from which hung a great iron pot weighing forty pounds or more. This utensil was used for boiling as were smaller brass and copper pots weighing only 15 pounds. There were iron spits for roasting, with a drip pan placed underneath to catch the fat drippings necessary for many household uses. A young boy was often kept busy turning the spits and keeping the fire going with bellows. In the summertime, the cooking was done out of doors. Gridirons were used for boiling, iron and brass skillets for baking and there were other pans for frying. On the kitchen table there was always a mortar and pestle and a grater. Plates, porringers and jugs were sometimes made of earthenware and wood but more often of pewter. The eating spoons were of tin, pewter and alchemy, but the cooking ladles were made of brass and iron. The settlers drank from tumblers, mugs, cups, flagons, tankards, and beakers. Some finely painted pie and fish plates have been restored from this period.

In 1620, a housewife could provide more abundantly for her family in Jamestown, a veritable wilderness, with her few acres of cultivation, than one living in London. Compared to living today in Virginia, it was five times more economical. There was much rivalry among the housewives as to who could set a better table before her guests and who cooked the greatest variety of food! Beverley wrote that "The inhabitants are very courteous to travelers who need no other recommendation but the being human creatures. A stranger has no more to do but inquire upon the road where any gentleman or *good housekeeper* lives, and there he may depend upon being received with hospitality."

Wild Teas and Tonics

By ROBERTS MANN, DAVID H. THOMPSON*

ORIGINALLY, tea was tea—a pleasant, bracing drink made by steeping the cured leaves of the oriental tea shrub in hot water. Later the word came to include beverages made from the flowers, fruits, seeds, stems, leaves, bark or roots of a wide variety of plants. Almost any plant with fragrant or mildly medicinal properties has been used for tea by someone.

The Indians had traditional systems combining cookery, medicine and magic in which certain plant brews were prescribed for almost every ceremony, physical ailment or mental disturbance. The different tribes often did not agree on which tea was best for what purposes but the early settlers borrowed many beverages and remedies from the red men. Some of their descendants, particularly in backwoods regions, still use them.

In pioneer times when doctors, medicines and money were scarce, some of those home remedies—such as the bitter brews of boneset leaves, willow bark or aspen bark—may have been beneficial in certain kinds of fever. A long list of plant teas—some palatable, some nauseous—were used in various communities as laxatives or for stomach-aches and other complaints. Confidence in their value may have given some psychological benefits but, in recent times, most of these panaceas have lost standing with the medical profession.

*Conservation editor and senior naturalist for Forest Preserve District of Cook County, Illinois.

Perhaps some familiar to us, at least by hearsay, are the old-time spring tonics drunk "to purify and thin the blood" or improve the appetite. The most enjoyable of these, whether it thins the blood or not, is the frequent orange-colored tea made by simmering the bark of sassafras roots. Tonics brewed from wormwood seed, the leaves and twigs of spicebush or prickly ash, and yarrow leaves, tasted too much like bitter medicine. Basswood flowers, red clover blossoms, wild ginger roots and chamomile leaves were dried to make enjoyable teas and tonics. Several mints were used, either dried or fresh: peppermint, spearmint, catnip, horehound, pennyroyal, and Oswego tea or mountain mint. Hops, sage, parsley and tansy were cultivated for tonic drinks and seasoning. Of all these, a few are still recommended as "camp teas" for youngsters and adults trying to imitate the ways of the Indians and early settlers.

During the American Revolution when real tea, obtained from England, was unavailable and banned as unpatriotic, the cured leaves of our native shrub called New Jersey tea were in great demand as a substitute. Similarly, during the Civil War, coffee was so scarce and costly in both the North and the South that coffee-colored hot beverages were made from parched acorns, grains and the like. Among the most widely used substitutes or adulterants for coffee—still popular in some southern regions—were the dried and roasted roots of

(Continued on page 22)



Photo by Thomas L. Williams

The apothecary spent many hours learning to identify plants of the New World. Many of these plants were utilized in making medicines and tonics.



By boiling the bark from sassafras roots, an orange-colored tea is made. This tea has a very pleasant taste and, in past years, was drunk to "purify and thin the blood."



National Audubon Society Photo by Allen D. Cruickshank

The pileated woodpecker, known by many colloquial names, appears to be increasing in numbers. A few years ago this bird became rather scarce in our woods.

THERE'S nothing unusual, these days, in seeing and hearing a pileated woodpecker. The breed seems to be increasing every year, even in fairly well-populated sections of the state. But there's always something interesting and thrilling in the sight of one of these big birds.

That's the way it was in the course of a very brief walk a few Sundays ago—brief because frequent rains had made the going underfoot very bad indeed. Part way up what we call Jenkins Hollow, between Chappell and Lower Donnally hollows, a pileated woodpecker flew across the rutted, country road. The bird uttered a characteristic “clucking” sound as it flew. A minute later from some perch out of sight on the wooded hillside it called loudly, a flicker-like sound.

These birds are among our most beautiful and are comparatively little known because they normally are shy and frequent heavy timber. In their favorite habitat, their keen hearing and eyesight make them difficult to surprise. These woodpeckers are crow sized, largely black with white over and under the wings, with a white line along each side of the neck and flaming red crests.

This is the “Lord God woodpecker” of the southern highlands (our race is a larger, but otherwise entirely similar one), which has so many other common names in various parts of its range that it serves as a living example of the necessity of technical nomenclature.

Mark Catesby, who was in North Carolina with pioneers of the eighteenth century, described the bird in 1731 and called it “large red-crested woodpecker,” according to A. C. Bent in his *Life Histories of North American Woodpeckers*. Linnaeus came along in 1758 to give it a technical name ending in “pileatus,” meaning crested.

By 1783 the Englishman, Latham, was publishing his

Pileated Woodpeckers

Apparently

Increasing

By JOHN W. HANDLAN

Staff Writer for the Charleston Gazette

Charleston, West Virginia

General Synopsis and, disregarding Catesby's labored common name, took his cue from Linnaeus and called it “pileated woodpecker.” Alexander Wilson (1811) followed Latham and Audubon (1842) followed Wilson, Dr. Bent explains, each giving the bird's common name as pileated woodpecker.

All the time, Dr. Bent laments, the latter two had considerable personal knowledge of the bird and its haunts and must have known the common, backwoods term of “log-cock.” We side with Dr. Bent in deploring the fact that the bird's common name is a “dull piece of pedantry, hopelessly fixed,” when it might have borne the descriptive, live and colorful title of log-cock.

There are other common names fully as colorful. Some of them are confusing because they trespass on the accepted vernacular names of other species. Applied to the pileated woodpecker in various sections are such names as: cock-of-the-woods, wood-cock, black woodpecker, black-log, English woodpecker, stump-breaker, Indian hen, laughing woodpecker, woodchuck and johnny-cock among numerous others.

In accepted vernacular, woodcock applies to an American shorebird and woodchuck is a name applied to a common American mammal—the groundhog. But the other names are picturesque and thoroughly imbued with an older Americanism than our present-day variety.

But now it's a pileated woodpecker—the *Hylatomus pileatus* of science.

These birds are ant-eaters, par excellence, sharing that distinction with the common flicker. Much of their food is made up of the big, black carpenter ants which tunnel into our forest trees from the roots, gradually hollowing the living tree from the ground up. Pileated woodpeckers, therefore, often work near the base of trees, cut-

ing great holes in them to get at the wood-boring, tunneling ants.

Pileated woodpecker work produces very large chips and usually results in oval or almost rectangular holes of considerable dimensions. They nest in similar holes and, after nesting season, are prone to excavate one or more holes in a hollow, living tree to serve as roosting places during winter.

Chuck Roberts, of Morgantown, says that a picture window in his home on Lake Lynn (Cheat Lake) fronts a tree which regularly is used by pileated woodpeckers, which he observes at leisure from the comfort of his residence.

These birds can be decoyed to feeding stations. Notably successful in this operation were the A. B. Brooks and Fred E. Brooks families when they had homes on the old family property at French Creek, in Upshur County. Occasionally, indeed, they could "call" the birds up by clapping their hollowed hands together to make a hollow, thumping sound somewhat like the hammer blows the pileated strikes at trees. Striking two sticks of firewood together also may bring pileateds out of the woods and into sight.

WILD TEAS AND TONICS (Continued from page 20)

the blue-flowered chicory which has become so common on our roadsides.

In South American countries, about 30 million people regularly sip maté, a hot caffeine-containing drink made from the cured leaves of a wild shrub related to our Christmas holly. Of all the plants cultivated for hot beverages, only three have remained popular throughout the civilized world: tea, coffee, and cacao from which cocoa and chocolate are made. People drink them because of the refreshing and stimulating caffeine and similar substances they contain.

INDIAN IMPLEMENTS (Continued from page 7)

made. One stone ball, made from quartzite, was recovered from Conner's Midden in Halifax County. The workmanship exhibited in fashioning this stone would be hard to equal with modern tools.

We are prone to think of the Indian as only a savage, but if we consider for a moment the hardships that he had to endure and the scarcity of materials at hand, he did rather well with the instruments at his disposal. As "civilization" advanced westward across North America, his way of life had to pass. The Indian was a part of his environment, not fighting it, but living with nature. As a hunter and fisherman he was without peer. Even with the crude instruments at his disposal, there are many who think that the pre-colonial Indian could excel a modern white hunter fully equipped with all of the latest hunting and fishing paraphernalia.

REFERENCES

1. Reynolds, B. D., "Indians of Virginia 350 years ago," *Va. Journ. Sci.*, 8(1):3-18, Charlottesville, Va., 1957.
2. Swanton, J. R., "The Indians of the southeastern United States," *Bull. 137 Smithsonian Inst. Bur. Ethno.*, Washington, D. C., 1946.
3. Carroll, R. P. and J. H. Reeves, Jr., "Conner's Midden, a Halifax County, Virginia, Indian site," *Quart. Bull. Archeo. Soc. Va.*, 10(2):1-7, 1955.

FISHING AT JAMESTOWN (Continued from page 9)

the tail of the fish and, by keeping a tight hold, letting the fish tire from flouncing about in the water.

The sturgeon often would pull the fisherman under water and if he stayed he became known as a brave fellow who would not let go and the Indians counted him as a cockarouse, a title of distinction.

The fish were for the taking and were easily preserved by the methods of smoking and salting that the Indians used. But, the settlers knew little of these processes and, because of their lack of knowledge, became starved when their riflemen found that it was not safe to venture into the woods, which were the hunting grounds of the tribes of the Tidewater Indians, near Jamestown.

Smith did not know all of the fishes which were in the waters. Beverley, however, listed those which he had seen 100 years later. Beverley listed herrings, rocks, sturgeons, shads, old-wives, sheep's heads, black and red drums, trouts, flounders, whittings, flatbacks, maids, wives, small-turtle, crabs, oysters, mussels, cockles, shrimps, needle-fish, breme, carp, pike, jack, mullets, eels, conger-eels, perch and cats. The spelling is that of Beverley.

Those same fish are to be found in the Tidewater rivers today. But, not in such numbers as Smith and Beverley have mentioned. Biologists declare that the fish are still in the rivers and that they could be just as plentiful to make Jamestown a fisherman's paradise except for the human and factory wastes which have polluted the spawning waters of the popular salt-water species.

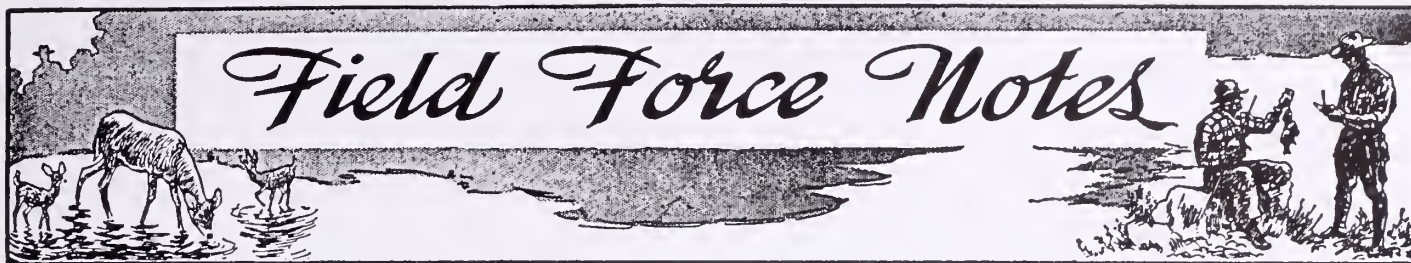
Snakes do not have eyelids. Even when it's asleep, a snake's eyes are wide open.

Tails serve animals as fly swatters, as signals, as instruments of communication, as extra hands and tools of many uses.

Two species of wild swan are native to America, the whistling swan and the trumpeter swan.

A centipede does not have a hundred legs. A common house centipede has 15 pairs. Garden centipedes have 21 and some other centipedes have anywhere up to nearly 200 legs.

Muskrats are powerful swimmers and when changing localities prefer to travel in water rather than overland.



The Game Commission has announced that the James River parking lot and landing site for hunters and anglers was completed the middle of June. This has been a long-sought-



The first of a series of public access roads was finished during June in Powhatan County. The Commission hopes to open many miles of new water to Virginia sportsmen with these roads.

after project and the access road is only 12 miles from the Huguenot Bridge. It formerly belonged to the Kennon estate in Powhatan County. It is an ideal location for a boat landing as the river is wider and not as swift as farther down on the James.

Two members of the Game Commission, Florence Blankenship, Chief of the Circulation Section, and Jane Cone, Editorial Assistant, recently spent a successful weekend drum fishing on the Eastern Shore. After reading Jennings Culley's interesting reports about it in the *Richmond News Leader*, they chose Wachapreague as an answer to all their needs . . . quiet and rest, with good opportunities there to capture a drum. When they arrived at Kiptopeke at midnight on Friday, after a nine hours' journey from Richmond, sleep crowded out all their fishing enthusiasm.

The Wachapreague Hotel, built in 1902, was deserted when they awoke Saturday morning, as all the fishermen had returned to their natural habitat around six a.m. Leisurely, they arranged their day for fishing.

The day was warm and clear and the seas were calm when they anchored near fifteen other "drummers." For three hours on an ebb tide, they fed the languid fish, then, suddenly, the first drum struck, and the excitement was intense in the circle of boats. Each skate Jane Cone caught was a potential 90 pounder, but Florence Blankenship, who had been doing desultory fishing, hauled in the only drum on the boat . . . weighing about twenty pounds.

When they returned triumphantly to the hotel, the friendly greetings from the other fishermen made them feel like "old salts." They had a delicious dinner, excellent service, and stimulating conversation. After dinner, they became good listeners!

On Sunday morning, they attended services at the oldest church on the Eastern Shore, St. George's Episcopal Church, which was founded in 1652. They ate the drum for dinner, baked especially for them, and when they had to leave, they told Dabney Sandidge, the hotel manager, that they enjoyed the home-like atmosphere and genuine southern hospitality. En route to Richmond, driving through the pines by the ocean, they realized a sense of tranquility from the peace and charm of the Eastern Shore.

Restocking reports from the fish division should keep anglers pretty busy for the rest of the season.

By the first of July about 30,000

trout were released in the streams; 75 percent of these were rainbows. This terminated the midseason stocking, but there should be, with intermittent cold spells and some rainfall, some active fishing until the close of the season December 31.

Construction work on Lake Shenandoah in Rockingham County was completed by the middle of June. Water was impounded from the Massanetta Springs for the beautiful new fish pond.

One of the more popular public services offered by the Commission is its catalog of conservation-education materials, and included among these is the wildlife poster chart series. The new *bird* charts, the most recent in this series, portray in beautiful color Virginia's birds of prey, summer and winter birds, and game birds. Each set of four sells for \$1.50 and may be obtained from the education division.



Garden clubs, scout groups, school teachers and others find the bird charts very educational. A great deal of interest in birds can be established by using these colorful charts.

Checks should be made payable to the Treasurer of Virginia.

Two other sets, depicting Virginia's native *birds and mammals* and *fish*, have been available for some time.



Waterfowl Come to Town

Charlie Gilchrist, waterfowl biologist, reports that a wood duck hen went a half mile inland, and only twenty feet from Route 17, to make her nest. Within the town limits of Tappahannock, a clutch of 14 wood duck eggs was found in a hollow tree in a woman's backyard, just outside of her kitchen window. The nearest water to the nest is the Rappahannock river, but it is a long way for the hen to move her brood.

Fishing Goes to Virginia

The threadfin shad in the Kerr Reservoir, Charlotte County, were flown from Knoxville, Tennessee, to Clarksville, Virginia, by the State Police Dept. Sgt. M. H. Kent piloted the twin-engined Apache Piper and remarked that it was the first time that he had ever had fish as passengers!

These fingerlings are used as forage for the more desirable game fishes and have proven successful in the increase of bass fishing in Philpott and Claytor lakes.

Shad's Menace

As an editorial in the *Chronicle* (horsy magazine published in Middleburg) has pointed out, the alarming increase in stray cats and dogs is the responsibility of either too tender-hearted or careless humans. Agreed, that whatever the motive is, these uninformed people not only upset the balance of nature but threaten public health as well. In many localities, game wardens spend 60 percent of their valuable time collecting strays. If suitable homes cannot be found, the humane thing to do is to destroy them, rather than let them become a

semi-wild predator and a menace to the community.

Record Rainbow Caught

It took a long time to land the 7 pound trout, but Leonard O. White, truck driver from Indian Valley, Virginia, said it was well worth it—even if he did break his line and have to



Mr. White, of Indian Valley, Virginia, had to manhandle this husky seven-pound rainbow after it broke his line.

resort to fisticuffs! The big rainbow was lazily swimming downstream in Big Stony Creek, Giles County, Virginia, when he grabbed the red worm that was dropped in front of him. The big fish broke the line but White grabbed it and held on. Fisherman and trout fought for an hour and a half. He butted him with his pole and swatted him with his fists until finally the fish surrendered. Game Warden Bill Jamison estimated the trout to be six years old or over, and he believes it to be the record rainbow caught in many years in Virginia.

Highway Men & Forest Night Hawk

An interesting nest of the night-hawk, *Chordeiles minor*, has been reported by Max Carpenter, special services officer of Dayton, Virginia. For several years, presumably the same bird has been nesting on the gravel driveway near the busy Virginia Highway shop in Harrisonburg. Several times last year the nest was destroyed by trucks and other heavy equipment.

Madame nighthawk is quite tame and, finally, as a means of identifying the nest, a yellow iron rod was driven into the ground beside it while the bird remained perfectly quiet. At present, her nest is protected by four heavy blocks of wood.

The highway men have made some keen observations of this bird. They have noticed that in early mornings the male bird rests on the ground near the female, but leaves her during the day. They have also noticed that the incubating female always faces the sun, turning gradually in the nest to follow it in its daily path from east to west.

Fresh Water Fishing Map

At last there is a freshwater fishing map of Virginia. Mitchell Cates of the Old Dominion Press has spent six years of research to make this unique map for anglers in Virginia. He has alphabetically categorized 443 ponds and streams with code letters to locate them on the highway map, on which each public freshwater fishing spot is indicated with blue ink. The Game Commission believes it will be an invaluable aid in the future. The copyrighted map can be purchased in sports and hardware stores for a nominal price.

Nutria Control

Nutria, a rodent resembling a muskrat or beaver, may be considered a money-making producer to furriers, but he is an unwanted competitor to wildlife conservationists. About twenty years ago, this South American native became established in this country and has increased dangerously ever since. He inhabits a large portion of the Southeast and Gulf Coast, as well as the Mississippi drainage and the Pacific Northwest. Four years ago, one was caught in the Back Bay area, but there has been no evidence of nutria in Virginia since then.

In direct competition with migratory waterfowl and muskrats for the vegetation in the marshes, the prolific nutria has properly concerned the U. S. Fish and Wildlife Service. The problem is acute on the Delta, Lacassine and Sabine national wildlife refuges in Louisiana where the rodent is consuming great quantities of delta duck potato, chufa roots, and other feed needed by the migratory waterfowl in the winter months. With the cooperation of refuge and predator and rodent control personnel, it is anticipated the proposed program of nutria control will be one of research and management combined.

Educational Meeting

On May 10th, members of the faculty of Bridgewater College, the University of Virginia, and the Public Schools of Richmond and Norfolk County, discussed experiments made in educational research at the one-day meeting of the Educational Section of the Virginia Academy of Science. The conference took place at the Hotel Chamberlain at Old Point Comfort. Subjects for discussion ranged from "Evaluating Behaviour Traits in Elementary Science" to a symposium on the "Needed Research on the Gifted Child."

California Sex Yellow

California has passed up the red color for hunter's visibility and substituted yellow, according to experiments made last winter. The tests were conducted in the coastal deer

ranges by the California Fish and Game Department, the California Optometric Association, and the National Rifle Association. Results of the visibility ratings showed yellow first on the list, then white, but red very far down in rating.

New Western Bird Guide in It

The last in a series of books on the birds of America, written by Richard H. Pough and sponsored by the National Audubon Society, has recently been published by Doubleday & Co., Inc. of New York City.

Entitled *Audubon Western Bird Guide*, the volume contains descriptions of 204 species of land, water and game birds found in western North



"That's it. One of those things you fling out and the fish brings back."

America, from Mexico to the Bering Strait and Arctic Ocean, including Alaska. Three hundred forty beautiful full-color drawings and 138 black and white illustrations, showing wing pattern and other diagnostic details, complement an excellent text, covering identification, habits, voice, nest and range of the birds.

Concluding Kids and Fishing

Recently, *Sportscope*, a weekly newsletter published by the Athletic Institute, did a little investigation here and there and came up with at least one surprising find. . . . it seems that many American kids are giving up baseball in favor of fishing!

Gilbert Youth Research, Inc., winding up an extensive five-year survey of sports participation by the country's 44 million or more young people between the ages of eight and twenty, discovered that such perennial favorites as football, basketball, baseball, swimming, etc., have shown, and are continuing to show, a marked decline in popularity.

On the other hand, sport fishing is attracting more and more young people every day, with statistics recording a 17 percent increase in angling in that five-year period surveyed, and a participation of 3.2 million minors between 12 and 18.

Understandably pleased, the Sport Fishing Institute commented on this by saying, in effect, that fishing is just a natural for kids anyway. And why not, considering that it qualifies as the nation's number one outdoor recreation and the most popular of any and all participation sports.

The American Academy of Pediatrics also lends an endorsement, reporting that highly competitive sports and those involving bodily contact, are not beneficial to most children, especially those 12 years or under.

Thus we say louder than ever, "take your kids fishing."

Fanged Bats Now in Evidence

However unlikely it may seem, if you chance to encounter any bats here in Virginia, take time to inspect them closely before swatting with a broom; they might be relatively rare Missouri banded bats.

Recently, Richard Myers, a graduate student at the University of Missouri, attached his 10,000th band to his 10,000 bat. He has been doing it for two years now, and according to the Missouri Conservation Commission, he holds an uncontested title in such activity. Myers is conducting a migratory study of the world's only flying mammal, and perchance one should reach this state, he would appreciate the finder notifying him.

According to Myers, Missouri boasts one of the top bat populations in the country, and by 1959 he expects to have banded 30,000 all told.

Ques.: What is the largest living tree in the world?

Ans.: It appears that the General Sherman Bigtree in the Sequoia National Park, California, holds the record. This tree is nearly 115 feet in circumference and 273 feet in height. There are approximately 600,000 board feet of volume in this giant.

Ques.: What has happened to the two eggs that were laid by the whooping crane in the New Orleans Audubon Zoo about six weeks ago?

Ans.: The first of the two baby whooping cranes was born after 31 days of nesting duties shared by papa Crip and his mate Jo. Three nights later the second crane made his appearance, bringing the world's total population of whoopers to 29.

Ques.: When the herring run, why do the buck rather than the roe come in first?

Ans.: As strange as other wildlife species in nature, such as the male robin, the gander and the buck deer, the male herring is acting as an advance guard doing reconnaissance for the female so that she can hatch her eggs safely.

Ques.: Does the kingfisher create a problem around our hatcheries?

Ans.: The kingfisher, as well as the heron, osprey and other birds, often takes a great many hatchery fish. Kingfishers will occasionally kill large fish and make no attempt to eat them. Unless the rearing ponds are completely enclosed with wire, control measures quite often must be initiated. These measures include the use of jump traps atop poles and shooting.

Ques.: Could you give me some information on the Appalachian Trail?

Ans.: This is a 2,000-mile trail running from Maine to Georgia along the crest of the Appalachian Mountains. There are approximately 900 miles of this trail running through eight national forests and two national parks. Shelters are maintained along the trail at convenient intervals for the hikers. Guide books and maps of this trail may be obtained from the Appalachian Trail Conference, 1916 Sunderland Place, N. W., Washington 6, D. C.

Ques.: Where did the word "spinning," in connection with fishing, originate?

Ans.: The type fishing to which you refer actually was invented in England. Here, spinning refers to a bait which spins or revolves in the water. Spinning in England is referred to as "threadline fishing" because of the extremely light, thread-like line used. Apparently, spinning is a term adopted by the American fisherman.

Ques.: From what material were gut leaders made before nylon was used?

Ans.: It may come as a surprise to many people, for the gut leader is made from the material extruded by the spinneret of the silkworm. The method for obtaining and processing this material is delicate and demands a great deal of experience.

Ques.: I have been told that I was taking a great risk by cooking mushrooms for my family and friends. Isn't it true that all mushrooms which are pink underneath are edible?

Ans.: No, it is not. In the button or unexpanded stage or decaying period, one is too apt to confuse poisonous and edible species. For instance, in the button stage, the deadly amanita is also pink underneath. Unless a person is well trained in the identification of mushrooms, he should avoid any species not positively known to be harmless, and many harmless species are scarcely edible. Out of about 4000 species of mushrooms, there are only four that can be called foolproof. The "foolproof four" are the shaggy-mane, the morel, the oyster, and the puffball.

Ques.: Should the "snake doctor" or "darning needle" that flies over our ponds and streams be feared? I have heard tales of this insect all my life and now wonder if they are true.

Ans.: Although many local stories exist concerning bad deeds of this insect, the dragonfly is actually beneficial in nature. It feeds on mosquitoes and other insects that are injurious or annoying to man. These creatures are very beautiful with their bright body colors and strange patterns found in their transparent wings.

Ques.: Is it true that the shad and herring in Virginia do not spawn until the dogwood is in full bloom?

Ans.: This is, of course, Old Dominion fish lore, which bears no authenticity except that the temperature of the water slowly rises as the temperature of the air becomes warmer. At approximately the same time that conditions become favorable for the blooming of the dogwood, the water has warmed sufficiently for the fish to begin their spawning activities.

Ques.: Is it true that most of the world's paper supply now comes from wood?

Ans.: Yes. Very little of our paper is now made from linen or other cloth rags.

Ques.: Does the term "toadstool" mean a poisonous mushroom?

Ans.: No, unless so called locally, for the truth is that the word toadstool is found nowhere in any scientific catalogue and all species of mushrooms, harmless and harmful, belong to the botanical division of fungi.

Ques.: I have noticed each year in my garden a white grub that seems to be rather abundant. Could you tell me what these grubs are?

Ans.: The grubs to which you refer are probably the larva form of the June bug. These larva make excellent fish bait and can be toughened in a sand box in the same manner as earthworms.

Ques.: The members of our hunt club recently had a heated argument over the most destructive agent of our forests. Most of the members said that the destruction caused by fire each year was the greatest. Is this correct?

Ans.: Although forest fires cause a great deal of damage each year, forest insects and diseases account for more than double the losses by fire.

Ques.: Could you please tell me a little about the woodchuck, such as breeding dates, gestation, etc.?

Ans.: The mating period of this animal begins in late February or early March, often while snow is still on the ground. A gestation period of approximately four weeks follows and the young, numbering four or five, are then born. The young remain in the den for four weeks. After this period of time, they usually start feeding on grass and by early July set out to establish a den of their own.



Automatic coin ice machines can be found today in almost any area. It is a simple matter to get bagged ice 24 hours a day every day of the week. On your next fishing trip, take some ice with you.



Some fishermen drop their fish on ice as soon as they are caught. Then, when fishing slows down or at the end of the trip, they can be cleaned at the leisure of the fisherman.

TAKE CARE OF YOUR CATCH

All too often fishermen will spend a lot of time, effort and money catching fish from both fresh and salt water, then the catch will be left in the bottom of a boat or on the floor of a hot car to dry out and bake in the sun. By the time the fish are ready for the pan, they are soft, mushy, strong tasting and hardly worth eating.

With a little planning and care, fish of many kinds can be put on the table almost as fresh as when they were taken from the water, and with a delicious flavor.

Follow these simple steps and you can take home fish that are tasty almost beyond comparison. You, your family, and friends will appreciate your efforts and enjoy eating fish at their flavorful best.

Commission Photos by Kesteloo

Fish should be cleaned as soon as it is possible or convenient to do so. A little care in the field will be repaid tenfold when they are ready for the table.

Before the trip home, pack the cleaned catch in your cooler. In an emergency an insulated box or the bag your ice came in will keep your fish fresh.



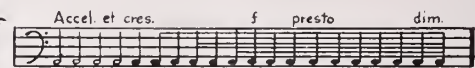
The RUFFED GROUSE



Good grouse habitat means a mixture of hardwoods for summer cover, conifers for winter cover and many edges for food-producing shrubs.



It takes an alert hunter to retain his wits when this brown thunderbolt bursts from underfoot.



Boom-Boom Boom Boom Boo Boo Bur-r-r-r-r-r-r!
The drumming call of the male is made by the wings beating the air. It sounds like a model T engine and accelerates to a whirr!



The population of the ruffed grouse fluctuates in apparent cycles. On the edge of their range this cycle is not pronounced.



Chief predators are the fox (both red and gray), which robs nests, and the great horned owl, which takes adult birds.



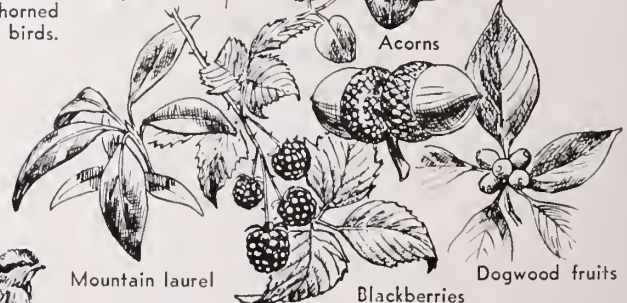
Ferns



Partridgeberry



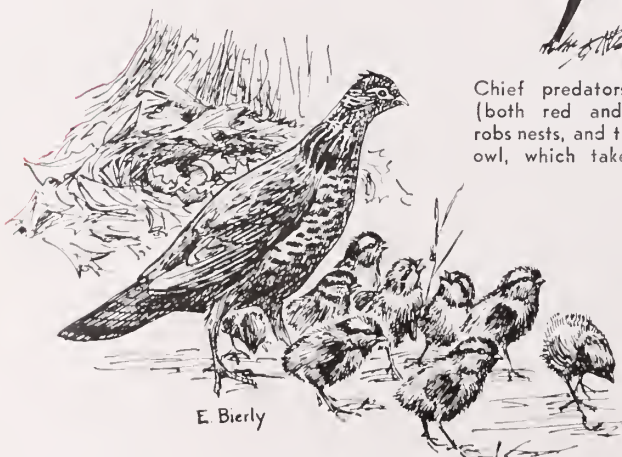
Acorns



Mountain laurel

Blackberries

Dogwood fruits



E. Bierly

The mother leads her brood of ten or eleven chicks from the nest a few hours after hatching, and they never see it again.

Grouse foods are mostly buds, twigs and evergreen plants in winter, greens in spring, and berries and fruits in season during the summer and fall.